or the imperfect way in which they can be examined. The difficulties which have hitherto lain in the path of osteological investigation of the skeletons of different animals, have been admirably overcome by the workmen under Mr. Flower's direction. The skeletons are mounted upon very light frames of iron, and the limbs are so articulated with the body as to be removeable on the extraction of a single rivet, and their several segments can be detached with equal facility. The head can be removed, and even its interior be examined, whilst the several vertebræ can be separately taken off without disturbing the position and arrangement of the skeleton generally. The advantages of this mode of mounting for the purposes of comparison and investigation to the real worker are simply incalculable. The mode in which the preparing has been done reflects the highest credit on Mr. Mosely and those who assisted him. We must call attention in particular to a wonderful skeleton of a pike, weighing 32lb., in which every bone has been cleaned and re-attached with wonderful dexterity. The fish was presented by Mr. Petre, of Westwick, Norwich, at the instance of Mr. Frank Buckland. The council of the Zoological Society have given a very fine adult specimen of the recently discovered long-tailed Chinese deer (*Elaphurus davidianus*), with one of the very rare and remarkable South African "Aard wolf," or *Proteles*.

Mr. Flower is gradually performing a great service to all comparative anatomists by carrying out the original idea of Hunter, and placing side by side the same organ as it presents itself in a great variety of animals. By such a method many points are seized in a moment, which it is impossible for the most careful describer to render into words, or for the most diligent reader to grasp, whilst likenesses and correspondences hitherto unrecognised everywhere make themselves apparent. This year we observe that a large number of specimens of the intestinal organs and of the larynx have been mounted, the plan pursued with the latter organ being similar in all; on one side the bones, cartilages, and ligaments being displayed, whilst on the other the muscles are exquisitely dissected.

The Teratological Division, or that treating of malformations and monstrosities, has scarcely received the scientific attention it deserves, whilst the specimens that have accumulated in the College are very numerous, and we are glad to observe that the work of their arrangement has been entrusted to so laborious and intelligent a worker as Mr. B. T. Lowne, whose work on the Blowfly is, we have no doubt, in the hands of many of our readers.

In regard to the Dermatological collection it may be remarked that the past year has been signalised by the institution of what may be termed an entirely new department of the collection; for such illustrations of diseases of the skin as the Museum formerly contained were very limited in number, and were incorporated in the general Pathological series. Moreover, the great majority of the morbid appearances presented by the skin cannot be shown in an anatomical museum by actual specimens, but recourse must be had to models and drawings to perpetuate and illustrate their characters, and no collection of such objects had hitherto been formed in the College.

When the Professorship of Dermatology was founded and endowed last year by Mr. Erasmus Wilson, it appeared necessary that the means of illustrating the lectures should also be provided; and for this purpose, as well as for the general advancement of the study of the subject, Mr. Wilson has presented to the College an extensive collection of drawings, casts, and models of cutaneous diseases, the greater proportion of the latter having been recently executed with great artistic excellence and fidelity by M. Baretta from patients in the Hospital St. Louis at Paris.

In order to provide space for the exhibition of this collection, and for any further additions that may be made to it, the council determined upon the erection of a set of rail-cases around the upper gallery of the western museum, on the same plan as those put up in 1863 in the lower gallery. Their cost will be defrayed out of the proceeds of the Endowment of the Chair of Dermatology, so that the cases as well as the collection must be looked upon as the gift of Mr. Wilson to the College.

Since the completion of the cases, Mr. Wilson has been engaged in arranging the preparations in systematic order, and in preparing a descriptive catalogue of the whole collection, the manuscript of which is now ready for the press.

PSYCHOLOGY IN ENGLAND

La Psychologie Anglaise Contemporaine (*Ecole Expérimentale*). Par Th. Ribot. (Paris: Ladrange, 1870.)

THIS book expounds to French readers the psychological doctrines of Mr. Jas. Mill, Mr. J. S. Mill, Mr. Herbert Spencer, Professor Bain, Mr. G. H. Lewes, and (more briefly) of Mr. S. Bailey, Mr. Morell, and Mr. Murphy. It ends with a short summary of general results won in the course of the great English psychological movement marked by these names, and is prefaced by an introduction giving the author's view of the development of the sciences, and particularly the science of psychology. For the English thinkers, also, of another type (Hamilton, Whewell, Mansel, Ferrier), he seems to promise to do next what he does here for those whom he classes together as making, after the proper tradition of English thought, an experimental school.

The appearance in France of such a work, at the present moment, has a real significance. Taken along with M. Taine's new and weighty contribution to psychological science (*De l'Intelligence*), and with another work or two, it means that the tide of thought is there turning, if it has not already turned. Between the contempt of M. Comte and the airy attentions of M. Cousin, it has fared indifferently with psychology in France for more than a generation. At a time, when in England, a number of active inquirers, continuing the work of last century, have been pushing forward psychological research in a spirit of strict science; when in Germany a number more, reclaimed from high priori roads of speculation to habits of careful introspective search, or starting from a physiological base, have been vying with their English compeers in efforts to resolve the subtle complicacy of psychical states, and thence to explain the most obscure and varied o all growths; the philosophical mind of France has been mostly turned to the history and criticism of opinion, content to retail the cut-and-dried psychology of an earlier day. From this state of things the original scientific inquiry of M. Taine is a refreshing departure, and M. Ribot's work, though in the main expository merely, has its face also set away. The younger French minds are again coming under the influence of English thought, as more than a century ago their forefathers came; and yet far otherwise than then. For, whereas then the triumph of Lockian ideas in France was, in truth, the overthrow of one national system of thought by another, now that mental philosophy in England bears the cosmopolitan character of science, it is but a case of one nation being guided by another into the path of progressive inquiry. Lighting the way in this work, M. Ribot expounds and summarises with all the arts of a Frenchman, and, for the most part, with good insight. Nor, though evidently in accord with the direction of thought which he makes known, is he a slavish expositor: serious gaps in the work both of individuals and of the school he does not fail incidentally to note. His very art, however, may be thought to lead him somewhat astray, when he seeks at the close to strike a general balance of scientific results, presuming upon the idea of a community of thought among so many inquirers. It is no reflection upon the English thinkers, and hardly even upon the scientific value of their labours, that in a matter so great and difficult, their work thus far is more distinguished for the many fruitful lines of inquiry that it has fairly opened, than for the number of questions that it has finally and unanimously closed.

The author's introductory chapter deserves more particular notice, having a lesson not for Frenchmen only. In England, where the cast of philosophical thought has all along been psychological, and well, as even Germans have come to see, where, also, psychology has first and most conformed to the conditions of science, there is yet a certain tendency, and not only in the minds of common people, to think and speak slightingly of mental inquiries. Philosophy (meaning mental philosophy, not, of course, *natural* philosophy in the land of Newton) is opposed to science, chiefly in the sense of being quite unscientific, and "metaphysics," vaguely supposed to be the same thing or the same nothing, is even a time-honoured term of abuse. This is a state of opinion on which M. Ribot's remarks bear so directly, that there may be an advantage in shortly giving the point of them; and perhaps they may suggest an observation or two not unseasonable at the present moment.

Philosophy, according to M. Ribot, was originally the name for science universal; at present, it is a name indefinitely and irregularly applied to an aggregate of several sciences, having relation chiefly to mind; in the future, it will again have the character of universality, but not be science. In other words, it was once the sum of human knowledge, such as that was; it is now, in part at least, a special kind of knowledge, real and scientific, but vaguely defined; it will become (under the name of metaphysics strictly understood) an extra-scientific, but necessary, complement of knowledge. The sciences, such of them as have not grown out of mere arts, have, in fact, detached themselves from philosophy as a great trunk; mathematics as early as the third century B.C., physics as late as the last three centuries, and not, perhaps, completely until the last. Detached, these have a being quite apart from what was called philosophy; they advance, and grow ever more special, untroubled by philosophic questionings about their foundation; indeed they advance because, and from the moment when, they have left all such aside. And this is now not more true of these than of other sciences concerned less with external nature than with man, and has become true even of sciences like psychology, still confusedly spoken of as philosophy. For already in England, and in Germany also, there is an investigation of mind conforming to all the conditions of scientific progress. It deals with actual phenomena, and attempts to explain them by discovering laws; troubling itself no more about an ultimate essence of mind, than mathematics or physics about the ultimate nature of space or motion, and only labouring by every resource of scientific method—observation of individuals, external as well as internal, and of masses through history and statistics, comparative study of the lower animals, investigation of all abnormal mental conditions, and artificial experiments as far as possible—to master the exceptional subtlety and complexity of the phenomena. For the rest, in philosophy proper, or metaphysic, there must ever remain to nobler minds a boundless sphere of consideration and mental endeavour. The underlying questions, which the sciences must ignore in order to advance, are nevertheless there, and will be answered somehow by all but narrow intellects. Speculation on the first principles and last reasons of things, so far from being superseded, is rather more deeply stirred as the sciences become greater, which is to say, more special. Only, verified science such metaphysical speculation can never be. Like poetry (and no more to be got rid of than poetry) it must always have a certain personal and subjective character. In truth, the metaphysician differs from the poet just in this, that in reconstituting the synthesis of the world, he works with abstract ideas instead of concrete pictures. So far, M. Ribot.

There is much that is noteworthy in the view thus roughly sketched. Some things, regarding the origin of the special sciences, could not easily be said better than by M. Ribot; and, in particular, his whole excursus on the question of the conditions, sources, and method of scientific psychology—a question that has perhaps been less considered by English than by German psychologists—may be commended as highly suggestive. In point of actual achievement in psychological science, distinguished from metaphysical speculation, this country is frankly placed first. It seems time, then, that we should cease to be blinded by any mere associations of language to one of our best titles to national fame. Nay, it even becomes our duty, if philosophy is no more than M. Ribot (to say nothing of others) declares, to lift the shadow of the name from off an arduous line of inquiry, sharply enough defined, clearly enough admitting, as it requires, scientific treatment, and already carried to no mean length in spite of popular misapprehension and the graver indisposition of physical inquirers to recognise in it a true branch of science. There is a science of mind, call it by whatever name, that has come into being like other sciences; and it is a natural science too, unless we are prepared to assert that man, on the most characteristic side of him, is an unnatural object.* Still there is likely to be some reason why, to this science of mind in particular, the name of philosophy should have clung, and if the reason be good, philosophy may not be on the road to become the mere poetry of abstracts that M. Ribot foresees. Let us look a little way into this matter.

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* In the newly-constituted Faculty of Science in University College, Psychology, under the name of Philosophy of Mind, is included along with Logic. Already for some years the two subjects have been recognised in the science-programme of the London University; the Bachelor of Science must pass in both, and the Doctorate of Science may be taken for special proficiency in them, along with certain subsidiary subjects, such as Political Economy. A knowledge of them is required also for the degree of M.D.

Psychology is a natural science if it deals with a definite class of phenomena constantly occurring in nature, deals with them on approved principles of scientific method, and marches steadily from old to fresh results: and that it does conform even to the last of these conditions, M. Ribot often in the course of his exposition has occasion, as he always is properly anxious, to show. What, then, is peculiar in the natural science of psychology? The phenomena dealt with are, beyond all others, complex, subtle, and obscure, requiring a finer tact and a larger scientific vision to single them out with any effect; but this, if it explains why psychology has lagged behind the other sciences, gives it no claim to stand apart. The phenomena, however, are quite peculiar, in being, as it were, two-faced, in having not only a side by which, like all other phenomena of nature, they (or, at least, many of them) fall under external observation, but also a side by which, unlike any other natural phenomena, they fall under so-called internal observation. This is, indeed, a peculiarity; and, further, let this go with it, that, as amongst such double-faced phenomena are all facts of human cognition, the subject of psychology extends, in a sense, to all things known or knowable; viewed, namely, as they are or may be known. Nothing to the same degree, nothing of the same kind, can be said of any other science; for though the general sciences, going backwards from biology, have an ever wider and wider sweep, extend, that is, to more and more objects viewed in the special aspects that each considers, psychology in this respect surpasses the most general of them all more than any of them, and in a way that none of them surpasses another. The science of mind does, therefore, stand on a certain level of its own. It has a place among the general sciences, and a place far down, namely after biology, from dealing with phenomena as much more complex than vital phenomena, as these are more complex than chemical phenomena. But it also has a place before all the sciences, from dealing with the growth of consciousness, and specially the laws and limits of those mental processes whereby all knowledge, scientific or other, must come. So that, if as a science it ought to be studied in its place among the sciences, in the light of their results as far as these bear on its subject, and in the spirit of rigid inquiry which they are best fitted to engender, its subject is still such that its results, when thus obtained, are not as theirs. Its results have not only, like theirs, a value in themselves and a forward reference, but they have a backward reference also. From the psychological stage, once reached, all the science that went before is seen over again in a new light. The true sense of the very language of the sciences—of such a word, to take but one instance, as "phenomenon"—is then first understood; and what before was mere practical assumption is turned into intellectual conception. Or, may we not say that there is gained a certain *philosophic* insight? A multitude of questions, M. Ribot truly said, were left unsolved at the root of the sciences, at the root of psychology itself among the rest. But some of them can be solved psychologically, and such of them as cannot are perhaps not all real questions. Where it is possible, the deeper psychological reading of an objective physical fact may not without reason be called *metaphysical*. It would seem, then, that there may be a metaphysic that does not break with science, and that one kind of science still, in some sense, deserves to be called philosophy. Psychology, in short, is Science in its method and Philosophy in its scope.

G. CROOM ROBERTSON

OUR BOOK SHELF

Dictionary of Scientific Terms. By P. Austin Nuttall, LL.D., editor of "The Classical and Archæological Dictionary," "Standard Pronouncing Dictionary," and numerous Educational Works. (London: Strahan and Co., 1869.)

WE are thankful to be able to say that we know nothing more of Dr. Nuttall than we learn from his title-page. We never even heard of him till we read his book, and we most sincerely hope that, as an author of scientific works, we shall know him no more. What the "numerous educational works" that he has published are we cannot tell, but if they are at all like his "Dictionary of Scientific Terms," the sooner they are consigned to the trunk-maker and the butter-man, the better will it be for the welfare of the unhappy youths for whose benefit they were composed. These may seem hard words to apply to a writer who hopes to "receive every indulgence from a generous public" (p. xi.); but when that writer outrages all our better feelings by stringing together a series of idiotic absurdities, and calling the result a "Dictionary of Scientific Terms," how are we honestly to deal with him, except by exposing a few of his blunders? We will begin by testing his chemical knowledge. It will hardly be believed that he regards black-lead, brass, magnet, ochre, pewter, and steel as constituting "a few of the principal metals" (p. xviii.); that nitrogen is "unrespirable" (p. 230), although he has previously told us at p. 12 that it forms about 80 parts of atmospheric air); that oxygen "generates acids" (p. 239); that alum is "an earthy chalk, a sulphate of alumina *or* of potash" (p. 18); and that "culinary, rock, or sea salt, is chloride of soda" (p. 277). His natural history is as peculiar as his chemistry. We will merely put his zoology to the test, assuring our readers that in so far as accuracy is concerned, his zoology, botany, and mineralogy are much on a par. "Zoology," he tells us, "embraces an account of all animal creation, the principal classes being the *Mammalia*, *Aves*, *Reptilia*, *Pisces*, *Invertebrata*, and *Insects*." The first class is subdivided into nine orders, of which one is "*Edentata*, or animals wanting some of the teeth of other animals" (p. xiii.) Being anxious to learn more of these covetous, commandment-breaking creatures, we turned to *Edentates*, and found that they are "an extensive order of the class Mammalia, comprehending those unguicolated quadrupeds which have no front teeth, and divided into three tribes, the Tardigrada, the ordinary Edentata, and the Monotremata." We leave our zoological readers to decide how far this description is an accurate definition of the order, according to recent views, such as our author might have learned by consulting the works of Owen, or of Huxley.

"Invertebrate animals are divided into *Mollusca*, *Articulata* and *Radiata*" (p. xiv.) We had hoped that by this time the "Radiata," having done their work, had modestly withdrawn themselves from their old position, and had been replaced by other classes; but Cœlenterata, Hydro-medusæ, &c., are terms unknown to Dr. Nuttall. "The Mollusca is (*sic*) so called from the body being soft and molluscous. It is divided into four classes, the *Mollusca*, *Conchifera*, *Tunicata*, and *Cirripeda*" (p. xiv.) How this marvellous division is accomplished we are un-